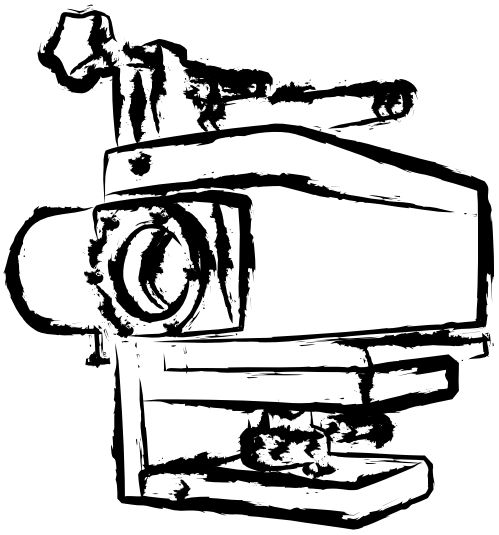
AMA LASER

T8 TUNNEL LASER
USER'S MANUAL



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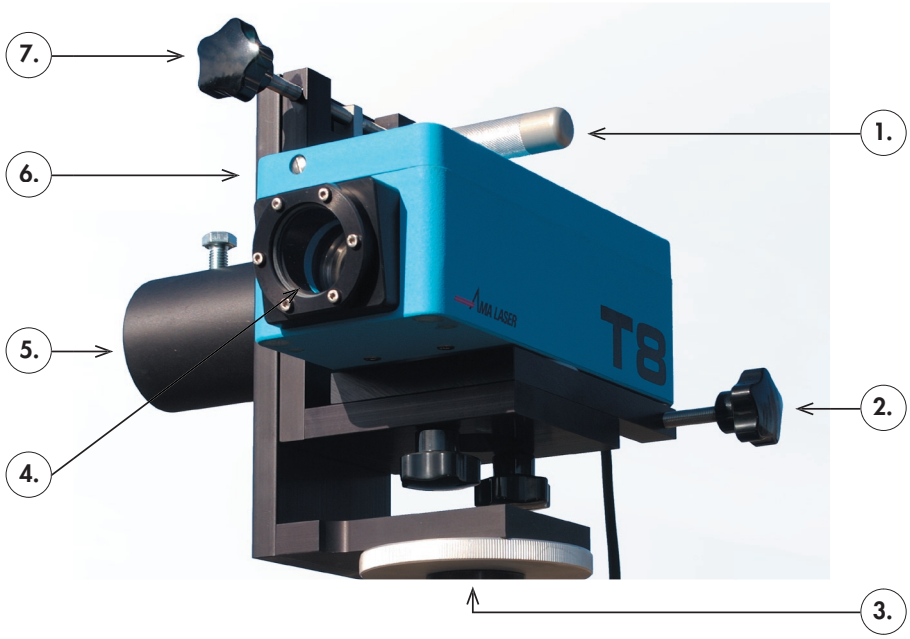
WARNING!
Do not stare directly into the laser beam.
Follow the advise issued by your national occupational safety agency.

1. DESCRIPTION OF THE UNIT

1. Carrying handle
2. Tangent alignment screws
3. 5/8" threaded tripod mount
4. Replaceable optic guard window
5. Mounting point for 1" steel pin
6. Nitrogen purged
7. Vertical alignment screws



INSTRUMENT

Casing made of heavy duty cast aluminium, water- and dustproof (tested to 1 bar overpressure). Purged with nitrogen to avoid condensation **(6)**. Replaceable optic guard window **(4)** covers the aperture and protects the optics.

MOUNTING BRACKET

Made of heavy duty aluminium. Alignment screw pairs are precision fine thread, counter acting to allow locking of position. Tangent alignment screws **(2)** at the back face, vertical alignment screws **(7)** on top. Two mounting functions: 5/8" threaded hole on the underside **(3)** for mounting on tripod or standard instrument bracket, and mounting point for 1" steel pin **(5)**. Convenient carrying handle **(1)** on top of instrument.

2. OPERATING INSTRUCTIONS

1. Mount the T8 with consideration to desired working distance, and minimize the risk for accidental hits by trucks etc.
2. Connect the power cable to appropriate power source (12/24VDC or 110/230VAC depending on instrument type). The laser beam is lit when the instrument is powered up.
3. Let the instrument warm up during one half hour.
4. Align the laser beam using the two pairs of alignment screws. Tighten the screws for secure position after alignment is achieved.
5. For added protection it is recommended that steel plate targets are fixed to the rock wall at approx. 5m and 20-50m distance. Drill a 20-30mm hole to allow laser beam to pass. This plate protects against blast rock damage, and is an easy check that the instrument is still properly aligned after blasts.
6. To shut the instrument off, disconnect the power source.

2.1 POSSIBLE CAUSES OF FAILURE

If the laser beam is not lit when the power source is connected, check the following:

1. Check that the power source is functional within specification above. For the 12/24VDC version, check if the battery is properly charged, or that the power converter is functional and properly connected to mains AC supply. For the 110/23VDC version, check that the mains AC supply is operational.
2. The fuse may have been blown. For the 12/24VDC version, the fuse is self resetting. Allow some minutes to pass and try starting the instrument again.
3. If none of the above actions are successful, and the instrument is still unoperational, contact your AMA dealer, or AMA Laser Systems AB for service repair.
4. If the beam size is larger than specified above, the optics have been damaged, and the instrument must be repaired.
5. If the instrument is damaged by blast rock, you should let your AMA dealer check for leakage and shock damage. This is especially important if the optic guard window has been cracked. If the instrument is no longer waterproof, the repair costs will be significantly higher if water or dust enters the instrument.

2.2 LASER SAFETY CONSIDERATIONS

The T8 tunnel laser complies with laser safety class 3R. The laser light is max 5mW, and is considered harmless under normal usage. The laser light is visible at wavelength 635nm. The human eye will adapt quickly to protect itself if exposed, and the laser classification levels are set so that the absorbed laser energy will not cause permanent damage to the eye. For your own convenience, you should avoid direct exposure to the laser light, and avoid prolonged staring at sharp reflections of the laser light. For more detailed instructions, please refer to national occupational hazard regulations.

2.3 CE CERTIFICATION

The T8 Tunnel Laser (Part no:s **AM51000** for 12/24VDC supply, **AM51000-1** for 110/230VAC supply) fulfills the requirements of conducted and radiated emission according to EN55011 limit A. It complies with EN61000-6-4: 97, and EN61000-6-2:99.

The T8 110/230VAC-version (**AM51000-1**) fulfills the requirements of transient immunity according to EN61000-4-5, 2kV and 2kV differential respectively common-mode coupling on power leads (performance criteria B).

The T8 12/24VDC-version (**AM51000**) fulfills the requirements of transient immunity according to EN61000-4-5, 0.5kV and 0.5kV differential respectively common-mode coupling on power leads (performance criteria B).

3. TECHNICAL DATA

	AM51000	AM51000-1
Laser type	Diode	Diode
Laser output power	3,5mW	3,5mW
Optional high power	5mW (max 7mW)	5mw (max 7mW)
Laser safety class	Class 3R	Class 3R
Focus distance	600m	600m
Beam diameter at 600m	35mm	35mm
Beam diameter at 100m	20mm	20mm
Power, nominal	12/24VDC	110/240VAC, 50/60Hz
Power limits	10 to 36VDC	85 to 264VAC, 47 to 63Hz
Power protection	Filtered, polarity switch	Mains filter protected
Power fuse	Thermal fuse, self resetting	1,5A Slow
Dimensions with bracket		
Height	240mm	240mm
Length (beam direction)	270mm	270mm
Depth	240mm	240mm
Weight	6,9kg	6,9kg

4. WARRANTY

Products sold by AMA Laser Systems AB are warranted by the company in the following manner to the following extent:

Subject to the succeeding provision hereof, AMA Laser Systems warrants products sold by AMA twenty-four (24) months after date for delivery from AMA Laser Systems AB. The manufacturer's liability under this warranty is limited to repairing or replacing any product returned to the factory or authorised service centre and judged, upon inspection to have been defective in material or workmanship.

This warranty covers the cost of labour as well as parts, but does not cover the cost of transportation to and from the factory or authorised service centre.

The forgoing states the entire liability of AMA Laser Systems AB to the owner of a registered AMA product. AMA Laser Systems AB shall not be held responsible for any consequential damages of any kind. The forgoing is in lieu of all other warranties expressed or implied. In case of malfunction, contact your AMA Dealer for shipping instructions.

Important: Your warranty card must be completed and mailed to manufacturer upon purchase to validate warranty.

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LASER RADIATION
AVOID DIRECT EYE EXPOSURE
CLASS 3R LASER PRODUCT